~~$f_n(3,2) = 17,5$~~ 15-40

15. $f(x,y) = y^5 - 3xy$

- $f_x = 0 - 3y$ - $\frac{\partial f}{\partial x} = 5y^4 - 3x$

$\frac{\partial f}{\partial x}$ $\frac{\partial x}{\partial x}$ f_y

16. $f(x,y) = x^4y^3 + 8x^2y$

- $f_x = 4y^3x^3 + 16yx$ - $f_y = 3x^4y^2 + 8x^2$

17. $f(x,t) = e^{-t}\cos \pi x$

- $f_x = -\operatorname{sen}(\pi x).\pi.e^{-t}$ - $f_t = (\cos \pi x).-1.e^{-t} = -e^{-t}\cos(\pi x)$

18. $f(x,t) = \sqrt{x}\ln(t)$

- $f_x = \frac{1}{2}x^{-\frac{1}{2}}\ln(t)$ - $f_t = \sqrt{x}.\frac{1}{t}$

19. $z = (2x+3y)^{10}$

- $z_x = 10.(2)(2x+3y)^9 = 20(2x+3y)^9$

- $z_y = 10.(3).(2x+3y)^9 = 30(2x+3y)^9$

20. $z = \tan(xy)$

- $f_x = \sec^2(xy).y$ - $f_y = \sec^2(xy).x$

21. $f(x,y) = \frac{x}{y}$

- $f_x = \frac{1}{y}$ - $f_x = -\frac{x}{y^2}$

22. $f(x,y) = \frac{x}{(x+y)^2}$

- $f_x = \frac{1(x+y)^2 - x.2(1)(x+y)^1}{(x+y)^4} = \frac{(x+y)(1x+y)-2x)}{(x+y)^{4-3}}$